

## AMENDMENTS TO THE CLAIMS

Claims 1-18 are pending. Claims 1, 4, 7, 10, 13 and 16 are amended. All pending claims and their current status have been reproduced below.

1           1.       (Currently Amended) A method of detecting at least one of a pan and a zoom in a  
2 video sequence, comprising:

3               selecting a set of frames from a video sequence;

4               determining a set of motion vectors for each frame in the set of frames;

5               determining a motion angle for each motion vector;

6               identifying at least two largest regions in each frame having motion vectors with sub-  
7               stantially similar motion angles ~~orientation in a reference coordinate system;~~

8               determining percentages of each frame covered by the at least two largest regions;

9               determining a statistical measure of the motion ~~angles~~ vector orientations in the refer-  
10              ~~ence coordinate system~~ for at least one of the two largest regions; and

11              comparing the percentages and statistical measure to threshold values to identify at  
12              least one of a pan and a zoom in the video sequence.

1           2.       (Original) The method of claim 1, wherein the step of selecting a set of video  
2 frames from a video sequence further comprises:

3               identifying a scene cut between two frames in the video sequence; and responsive to  
4               the identification of a scene cut,

5               selecting a set of video frames from the video sequence that includes all the frames in  
6               the video sequence up to and including a frame just before the scene cut.

1           3.       (Original) The method of claim 2, wherein frame differences and motion infor-  
2 mation are used to identify a scene cut.



1           4.       (Currently Amended) The method of claim 1, wherein the motion angles are  
2 computed in ~~reference coordinate system~~ is one from the group of reference coordinate systems  
3 consisting of polar, Cartesian, spherical and cylindrical coordinate systems.

1           5.       (Original) The method of claim 1, wherein the percentages of each frame covered  
2 by the at least two largest regions are determined from the number of pixels in each region as a  
3 percentage of the total number of pixels in a frame.

1           6.       (Original) The method of claim 1, wherein the statistical measure is a variance.

1           7.       (Currently Amended) A system for detecting at least one of a pan and a zoom in  
2 a video sequence, comprising:

3               a preprocessor for selecting a set of frames from a video sequence; and

4               a motion analyzer for determining a set of motion vectors for each frame in the set of

5                       frames, determining a motion angle for each motion vector; identifying at

6                       least two largest regions in each frame having motion vectors with substan-

7                       tially similar motion angles ~~orientation in a reference coordinate system~~, de-

8                       termining percentages of each frame covered by the at least two largest re-

9                       gions, determining a statistical measure of the motion angles ~~vector orienta-~~

10                      ~~tions in the reference coordinate system~~ for at least one of the two largest re-

11                      gions, and comparing the percentages and statistical measure to threshold val-

12                      ues to identify at least one of a pan and a zoom in the video sequence.

1           8.       (Original) The system of claim 7, wherein the step of selecting a set of video  
2 frames from a video sequence further comprises

3               identifying a scene cut between two frames in the video sequence and responsive to  
4               the identification of a scene cut, and

5               selecting a set of video frames from the video sequence that includes all the frames in  
6               the video sequence up to and including a frame just before the scene cut.



1           9.       (Original) The system of claim 8, wherein frame differences and motion informa-  
2       tion are used to identify a scene cut.

1           10.      (Currently Amended) The system of claim 7, wherein the motion angles are com-  
2       puted in reference coordinate system is one from the group of reference coordinate systems con-  
3       sisting of polar, Cartesian, spherical and cylindrical coordinate systems.

1           11.      (Original) The system of claim 7, wherein the percentages of each frame covered  
2       by the at least two largest regions are determined from the number of pixels in each region as a  
3       percentage of the total number of pixels in a frame.

1           12.      (Original) The system of claim 7, wherein the statistical measure is a variance.

1           13.      (Currently Amended) A computer-readable medium having stored thereon in-  
2       structions which, when executed by a processor in a system for detecting at least one of a  
3       pan and a zoom in a video sequence, cause the processor to perform the operations of:

4               selecting a set of frames from a video sequence;

5               determining a set of motion vectors for each frame in the set of frames;

6               determining a motion angle for each motion vector;

7               identifying at least two largest regions in each frame having motion vectors with sub-  
8               stantially similar motion angles ~~orientation in a reference coordinate system;~~

9               determining percentages of each frame covered by the at least two largest regions;

10              determining a statistical measure of the motion angles ~~vector orientations in the refer-~~  
11              ~~ence coordinate system~~ for at least one of the two largest regions; and

12              comparing the percentages and statistical measure to threshold values to identify at  
13              least one of a pan or a zoom in the video sequence.

1           14.      (Original) The computer-readable medium of claim 13, wherein the step of se-  
2       lecting a set of video frames from a video sequence further comprises:

3               identifying a scene cut between two frames in the video sequence; and responsive to  
4               the identification of a scene cut,



5           selecting a set of video frames from the video sequence that includes all the frames in  
6           the video sequence up to and including a frame just before the scene cut.

1           15.    (Original) The computer-readable medium of claim 13, wherein frame differ-  
2           ences and motion information are used to identify a scene cut.

1           16.    (Currently Amended) The computer-readable medium of claim 13, wherein the  
2           motion angles are computed in reference coordinate system is polar coordinates.

1           17.    (Original) The computer-readable medium of claim 13, wherein the percentages  
2           of each frame covered by the at least two largest regions are determined from the number of pix-  
3           els in each region as a percentage of the total number of pixels in a frame.

1           18.    (Original) The computer-readable medium of claim 13, wherein the statistical  
2           measure is a variance.